

Education in Sea Grant



Sea Grant Educators teach students about fisheries impacts. Credit: MS-AL Sea Grant

The **Sea Grant model** of integrating research, outreach, and education uniquely positions Sea Grant Educators to bring ocean, coastal, and Great Lakes science literacy to the U.S. population, beginning **with preschool students and continuing through lifelong learners**.

WHO:

- Educators backgrounds and expertise in both technical science and education, as well as
- Sea Grant's strong affiliation with research universities

HOW:

- high-quality materials, curricula, and programs based on national and state standards
- exemplary, science-based teacher preparation and
- professional development opportunities

WHAT: an education network unequalled in ability to obtain and deliver current ocean, coastal, and Great Lakes science to students of all ages.

Sea Grant Education Impacts

- MIT Ocean Engineering Experience, 11-12 gr.
- Ohio 3374 students in field experience for a day
- Oregon University focus area & grad program, free choice learning
- NH \$145K in volunteer services
- FL aquaculture curriculum in 22 schools
- CT Mentor Teacher Program to get LIS curriculum in K-12 schools
- USC books & videos for children – prevent AIS from release of pets & classroom animals [FL partnership]



MIT Sea Grant's Ocean Engineering Experience summer academic program introduces high school students to **open ended problem solving, design, and fabrication**. Credit: MIT Sea Grant



With the help of Oregon Sea Grant the Hatfield Marine Science Center has **revamped exhibits to facilitate free-choice learning**. Oregon Sea Grant



With oversight by Connecticut Sea Grant, teams of **mentor teachers meet to develop a workshop**. Credit: Connecticut Sea Grant

Environmental Literacy and Workforce Development

- One of the four focus areas in Sea Grant's 2014-17 National Strategic Plan.
- Sea Grant recognizes that in the 21st century environmental literacy is a fundamental component of an informed public with the ability to
 - understand scientific evidence and
 - make knowledgeable decisions about environmental issues.
- To help achieve that vision, Sea Grant Educators are working in coastal communities across the United States to promote ocean, coastal and Great Lakes science to children and life long learners.

National Graduate Sea Grant Fellowships



Sea Grant John A. Knauss Marine Policy Fellowship

- established in 1979
- graduate students with interest in ocean and coastal resources and in the national policy decisions affecting those resources.
- awarded 49 Fellowships in 2013.
- Each student was placed with a “host” in the legislative or executive branch of government in Washington, DC to learn about marine policy.

Sea Grant National Marine Fisheries Service Fellowship

- Created in 1999
- to encourage careers in population and ecosystem dynamics or marine resource economics.
- multi-year fellowship
- awarded to seven PhD students in 2013, 23 total since inception
- Each Fellow works closely with an expert mentor from NOAA Fisheries who may serve on the Fellow’s PhD committee.
- accelerates career development and provides valuable real-world experience.

Sea Grant Research



A graduate student **teaches classes** about her research. Hawaii SG

Sea Grant invests heavily in graduate student support in addition to overall investment in environmental literacy. More than **50% of the Sea Grant research projects** depend on graduate students, leading a total of 1,892 graduate students supported by Sea Grant in 2012. **Graduate students supported by Sea Grant's education investment are a crucial part of the success of Sea Grant research.**

Planning and Evaluation

The effectiveness of the National Sea Grant College Program's education efforts is rigorously evaluated as part of the Planning, Implementation, and Evaluation process.

Once every four years, individual Sea Grant Program undergo site visit and program performance reviews. The site review evaluates each Program's management and organization, stakeholder engagement, and collaborative network activities, while the performance review evaluates each Sea Grant Program's performance according to the priorities set forth in each Program's strategic plan as well as the Program's overall program impact based on the Federal investment.

These two independent reviews provide a comprehensive picture of the effectiveness of each Sea Grant Program. Programs are also required to submit annual reports for review by NOAA to track and report progress towards their strategic plans, national performance measures, and metrics. **The results from past reviews are clear: Sea Grant Programs, and specifically their education efforts, are well-managed, cost-effective and provide valuable services to stakeholders.**



National Sea Grant College Program

FY2012 Performance Measures and Metrics

As a result of Sea Grant activities, the National Sea Grant achieved...

ECONOMIC BENEFITS

| | |
|---------------|--------------------------------|
| \$170M | In Economic Benefit |
| 630 | Businesses Created or Retained |
| 3,800 | Jobs Created or Retained |



NSGO

HEALTHY COASTAL ECOSYSTEMS

| | |
|----------------|--|
| 480 | Ecosystem-Based Management (EBM) Tools, Technologies, and Information Services developed |
| 470 | EBM Tools used by Sea Grant customers |
| 4,400 | Resource managers use EBM |
| 670,000 | Acres of degraded ecosystems restored |



Guam Sea Grant

HAZARD RESILIENCE IN COASTAL COMMUNITIES

| | |
|------------|-----------------------------------|
| 450 | Communities trained in resilience |
| 150 | Communities improved resilience |



Florida Sea Grant

RESEARCH

| | |
|------------|----------------------------|
| 230 | Proposals funded |
| 400 | Peer-reviewed publications |



Alaska Sea Grant

SAFE AND SUSTAINABLE SEAFOOD SUPPLY

| | |
|---------------|--|
| 9,900 | Fishers adopted responsible harvesting techniques |
| 56,000 | Stakeholders modified practices based on increased knowledge of safety, sustainability, and health |
| 1,500 | Hazard Analysis & Critical Control Points (HACCP) certifications |



Michigan Sea Grant

SUSTAINABLE COASTAL DEVELOPMENT

| | |
|------------|--|
| 900 | Communities implemented sustainable development practices/policies |
| 800 | Annual/Clean Marina Certifications (since 1995) |



Louisiana Sea Grant

EDUCATION, OUTREACH, AND EXTENSION

| | |
|----------------|----------------------------------|
| 310,000 | Volunteer hours |
| 1,000 | Undergraduate students supported |
| 150 | Undergraduate degrees awarded |
| 950 | Graduate students supported |
| 200 | Graduate degrees awarded |

25



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